

R. R. Tolson

Dakota Agricultural Engineering

January 1957

Information about the occurrence of strong winds on the delta islands was obtained from our spot climate station on Ginter Street for the second consecutive year. New extra attachments on the wind registering device permitted a better evaluation of the recordings at high velocities. This is particularly true of the determination of wind directions on the 16-point scale. Since the operation of the station was started on May 20, last year, this year for the first time the information was collected for the entire critical period which is considered to be from March 1 until October 1. For reasons of convenience tables 1 to 4 are arranged in the way similar to last year.

In table 2 of last year's report, west was determined as the prevailing wind direction despite a noticeable slight north-component. According to this year's record these winds seemed to be rather close to NW and were tabulated as such in table 1. The exact direction might be between W and NW as can also be seen in the streamline diagram of last year's report. According to table 1 (third line), the W and NW directions exist on about 72% of all days with velocities over 15 mph. This percentage is lower in the spring months, when wind shifts are greater during storm passage, and higher during the summer, when the meridional-like pressure distribution is established. The higher pressure over the ocean even forces the marine air into the interior valleys (figure 1 last year), approaching the delta area from a direction a little north of west. Due to additional day-time heating the occurrence of the strong winds, especially those with the critical velocity of 15 mph, reach a very high peak during the afternoon hours (table 4), as was reported in the previous year. Also similar to last year's finding is the maximum frequency of strong winds in May and June. The number of hours of wind of 15 or more mph is again very high in this period (table 2).

The pronounced differences from last year's data are observed in that obtained this year. First, this year data show a certain number of strong N, NW, and NE-winds, which didn't occur last year during the recording period. Second, the number of hours of strong winds was much smaller in 1956. Comparing the data of table 3 for 1955 and 1956 for winds of 15 mph we find:

	March	April	May	June	July	August	September	
1955:	"	"	(85)	87	10	0	1	hours
1956:	59	25	52	34	6	3	0	"

Not too much weight should be given to the figures for March and April since they represent only one year's observations. Several years will be needed to establish reliable averages for these unusual months. For the same reason, distribution of data obtained during the late fall months was omitted in this report.

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H. R. Daniels

Delta Agricultural Experiment

JANUARY 1957

### Portable Mast

A mast on a light-weight trailer for measuring wind profiles over various grounds, that has to be especially light in order to permit quick change of locations, which have to be done by personnel because of the specific soil conditions, was constructed for use in next spring. With this method we expect to obtain quantitative information about the drag of the flow on white spruce beds with and without interplanting.

A portable mast mounted on a light-weight trailer was constructed for measuring wind profiles over various terrain features. This device will permit quick change in location so that widely varying soil conditions can be evaluated. It is hoped that quantitative information about the drag of the wind flow on white spruce beds, with and without interplanting can be obtained with this equipment.

A. R. Results

Baylor Agri-Cultural Experiment

Station 1957

Table 1. Number of days with at least one hourly velocity of 10 mph or more from March 1 to September 30, 1956

	March	April	May	June	July	August	September	Total
Number of available recorded days	22	22	26	30	29	30	27	193
Number of days having vel. 10 mph or more	13	12	24	20	25	25	7	136
Number of days vel. 10 mph or more free & up 10%	7	14	27	25	30	12	6	101

Table 2. Occurrence of directions for velocities of 10 mph or more from March 1 to September 30, 1956

Directions	S	SW	SE	NE	N	W	SW	SE	N	NE	E	NE	SW	SE	SW	NE
No. of days	6	0	4	1	17	8	17	3	4	0	0	0	0	0	0	2

Table 3. Totals of hours of high velocities for the various months

	March	April	May	June	July	August	September
Number of hours of 10 or more mph.	119	132	195	193	208	68	27
Number of hours of 15 or more mph.	59	25	92	94	6	3	0
Ave. duration of one daily period of winds of 10 mph. or more	9.0	8.0	8.1	6.4	6.3	6.2	5.3 hrs.

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R. R. Sankaran

District Agricultural Engineer

January 1957

Table 4. Frequency of velocities of 10 and more mph. for the various hours of the day, March to September 1956.

PT	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12
AM	12	9	6	7	5	3	7	13	23	30	35	42
PM	37	39	55	33	108	110	71	37	28	15	14	8
Total for velocities of 10 mph and more												
AM	0	1	0	0	2	0	1	4	3	6	8	10
PM	9	14	18	27	48	23	9	5	6	2	2	0

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